



THE LADY ELIZABETH  
SCHOOL

Chemistry @ Lady Elizabeth



# Finding Solutions



[www.laudeladyelizabeth.com](http://www.laudeladyelizabeth.com)

Part of the International Schools Partnership Group



## EDEXCEL INTERNATIONAL ADVANCED LEVEL CHEMISTRY

### WHY STUDY EDEXCEL IAL CHEMISTRY?

Students will study aspects of chemistry that are often in the media and affect their lives. It is important that students have the necessary knowledge and understanding to explain many different aspects of contemporary chemistry. These areas include:

- climate change
- green chemistry
- pharmaceuticals
- chemistry research

The content of this specification includes the fundamental key concepts of chemistry needed for progression into higher education and employment. However, it has been streamlined to allow students enough time to study the units in depth. This ensures that the teaching and learning experience is enjoyable.

The International Advanced Subsidiary is the first half of the International Advanced Level course and consists of Units 1, 2 and 3. It may be awarded as a discrete qualification or contribute 50 per cent of the total International Advanced Level marks.

The full International Advanced Level award consists of the three IAS units (Units 1, 2 and 3), plus three IA2 units (Units 4, 5 and 6) which make up the other 50 per cent of the International Advanced Level. Students wishing to take the full International Advanced Level must, therefore, complete all six units.

### WHAT DO I NEED TO KNOW, OR BE ABLE TO DO, BEFORE TAKING THIS COURSE?

The qualification builds on the knowledge, understanding and process skills that you achieved in GCSE Science, Additional Science and Chemistry, or applied science courses such as the BTEC First Certificate in Applied Science. It is expected that you should have at least the equivalent of a GCSE grade B in Chemistry or Additional Science, and a GCSE grade C in Mathematics. Pupils who achieved a C grade at GCSE may be considered on an Individual-Contract basis – covering specific targets to be met in the first weeks of the course.

In chemistry you will need to be able to communicate effectively, be able to carry out research, work independently and critically think about problems. Good practical skills are also important as chemistry is a very practical subject.



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## IS THIS THE RIGHT SUBJECT FOR ME?

The aims of the International Advanced Level in Chemistry enable students to develop:

- an interest in, and enthusiasm, for chemistry including developing an interest in further study and careers in chemistry
- an appreciation of how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society
- a deeper understanding of the skills, knowledge and understanding of How Science Works
- essential knowledge and understanding of different areas of the subject and how they relate to each other.

## WHAT WILL I LEARN?

The International Advanced Level qualifications in Chemistry require students to:

- recognise, recall and show understanding of scientific knowledge
- select, organise and communicate relevant information in a variety of forms
- analyse and evaluate scientific knowledge and processes
- apply scientific knowledge and processes to unfamiliar situations
- assess the validity, reliability and credibility of scientific information

## WHAT CAN I DO AFTER I'VE COMPLETED THE COURSE?

Many employers view success at IAL Chemistry as a clear indication of sound academic ability. Many university courses have a significant proportion of chemistry content and an IAL in Chemistry from Edexcel is excellent preparation for such further study. UK HE institutions currently offer over 200 courses where chemistry is the primary subject. Often these courses can include an additional year's study, either in industry or at a university abroad. Some courses can include study in other related areas. Examples include:

- chemistry with medicinal chemistry
- chemistry with forensic science and toxicology
- chemistry with pharmacology.

Over 500 additional courses contain a notable element of chemistry as well as allowing a degree of breadth of study. These include:

- chemistry and sports science
- chemistry and politics
- chemistry with computer science.

In addition a number of other courses either specifically require or find it desirable to have an IAL in Chemistry. These include courses such as chemical engineering, medicine, veterinary medicine, biological sciences, environmental science, pharmacy and dentistry.



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## HOW WILL I BE ASSESSED?

January and June examinations - 100% external assessment with no coursework.

IAS qualifications can be taken as a stand-alone qualification, or used as a stage, on the way to completing an International Advanced Level IAS qualification represents 50% of an International Advanced Level.

### IAS Unit 1: The Core Principles of Chemistry

Assessment: Examination of 1 hour 30 minutes in two sections:

Section A: objective test questions

Section B: mixture of short-answer and extended answer questions  
40% of the total IAS raw marks; 20% of the total IAL raw marks

### IAS Unit 2: Application of Core Principles of Chemistry

As for IAS Unit 1 but in addition, the examination will contain a Section C: contemporary context questions.

### IAS Unit 3: Chemistry Laboratory Skills I Alternative

This unit contains a practical written examination that covers the content of Units 1 and 2. The practical written examination covers the areas of physical, organic and inorganic chemistry and the following types of practical: qualitative observations, quantitative measurements, preparations.

Assessment: Examination of 1 hour 15 minutes with one section.  
20% of the total IAS raw marks; 10% of the total IAL raw marks

### IA2 Unit 4: General Principles of Chemistry I – Rates, Equilibria a

Assessment: Examination of 1 hour 40 minutes in three sections:

Section A: objective test questions

Section B: mixture of short-answer and extended answer questions

Section C: data questions, with use of a data booklet.

40% of the total IA2 raw marks; 20% of the total IAL raw marks

### IA2 Unit 5: General Principles of Chemistry II – Transition Metals and Organic Nitrogen Chemistry

As for IA2 Unit 4 except in place of data questions Section C covers contemporary context questions.

### IA2 Unit 6: Chemistry Laboratory Skills II Alternative

As for IAS Unit 3 except the unit contains a practical written examination that covers the content of Units 4 and 5.

EDEXCEL IAL SPECIFICATION – SEE THE EDEXCEL WEBSITE FOR FULL DETAILS

## IAS UNIT 1

### Topic

- 1.1 Formulae, equations and amounts of substance
- 1.2 Energetics
- 1.3 Atomic structure and the periodic table
- 1.4 Bonding
- 1.5 Introductory organic chemistry



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## IAS UNIT 2

### Topic

- 2.1 Shapes of molecules and ions
- 2.2 Intermediate bonding and bond polarity
- 2.3 Intermolecular forces
- 2.4 Redox
- 2.5 The periodic table – groups 2 and 7
- 2.6 Kinetics
- 2.7 Chemical equilibria
- 2.8 Organic chemistry
- 2.9 Mechanisms
- 2.10 Mass spectra and IR
- 2.11 Green chemistry

## IA2 UNIT 4

### Topic

- 4.1 How fast? – Rates
- 4.2 How far? – Entropy
- 4.3 Equilibria
- 4.4 Application of rates and equilibria
- 4.5 Acid/Base Equilibria
- 4.6 Further organic chemistry
- 4.7 Spectroscopy and chromatography

## IA2 UNIT 5

### Topic

- 5.1 Redox and the chemistry of the transition metals
- 5.2 Organic chemistry – Arenes, nitrogen compounds and synthesis

For further information please see Mrs E Shapiro or Miss J Wood

